

Please replace the original abstract after the set of claims with the following:

**ABSTRACT**

The invention relates to a process for producing doped organic semiconductor materials with an elevated charge carrier density and effective charge carrier mobility by doping, in which the doping agent is substantially produced by electrocrystallization in a first step, the doping agent is selected from a group of organic compounds with a low oxidation potential, and in which an organic semiconductor material is doped with the doping agent in a second step. Furthermore, the invention relates to doped organic semiconductor materials with an elevated charge carrier density and effective charge carrier mobility produced by the aforementioned process. Furthermore, the invention relates to an organic diode comprising doped organic semiconductor materials produced in accordance with the aforementioned process.